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-: SOIL CONSERVATION LITERATURE :-

SELECTED CURRENT REFERENCES

Compiled By The Library Staff Of The Soil Conservation Service
From Publications Received In The
United States Department of Agriculture Library, Washington, D.C.

JUNE 1936

PERIODICAL ARTICLES

Dams

Hardenburgh, W.A. Spillway capacity and runoff estimates for small dams. Presents formulas and directions for construction of spillways for earth dams on large and small watersheds. (Second in series covering good practice in design and construction in small earth dams.) Pub. Works 67(1):15-16. January 1936.

Dust Storms

Henderson, C.A. Letters from the dust bowl. Atlantic Mo. 157(5): 540-551. May. 1936.

Describes in detail agricultural conditions on one farm in Oklahoma with special reference to drouth and resulting dust storms.

The author went with her husband, soon after their marriage in 1908, to a farm in Eva, Oklahoma. She says, "only people like ourselves who have invested their lives in the 'short grass' country know the sorrow of seeing these hard-won acres 'all up in the air!'"

Erosion Prevention and Control

Bennett, H.H. Beating back devastation. Mag. Wall St. 58(1):27. Apr. 25, 1936.

Emphasizes the responsibility of the farmer in tilling the soil and at the same time conserving its fertility.

Knappen, T.M. The menace of erosion. Mag. Wall St. 58(1):27-28, 60. Apr. 25, 1936.

Presents the attitude of American Bankers Association members regarding erosion and the work of Soil Conservation Service, with statistical data concerning erosion and flood damage, and the present operations for reclamation of land in the United States.

Nelson, A.L. Erosion of soil problem that requires best judgment in view of circumstances. Wyo. Stockman-Farmer 42(3):1,15. March 1936.

The author stresses the importance of climatic investigations and soil studies and observations in the interest of the erosion control plan.

Thompson, J.P. Some relationships between the soil canyons of certain southeastern Washington valleys and summer-fallow cultivation. Northwest Sci. 10(1): 8-11. February 1936.

Erosion Prevention and Control (cont'd)

Zinn, W.D. Farm practice: erosion control. Pa.Farmer 114(11):3.
May 23, 1936.

The author makes the following statement: "The farmer who is not applying lime and commercial fertilizer is the one with whom these government officials should spend their time, but let me say confidentially that I consider it a reflection on our profession that the government should consider it necessary to give us this information."

Floods

Cooke, M.L. Upstream. Surv.Graphic 25(5):300. May 1936.

Brief discussion of flood conditions in the United States. Suggests that, for proper flood control, drainage basins must be considered as a whole and erosion must be checked from the ridges downward across the slopes of the valleys.

Flood control work in the Rio Grande delta. Restriction of the main river channel in the delta region makes floodways necessary. International Boundary Commission cooperates with the countries in levee and floodway construction. Engin.News-Rec. 116(12):407-411. Mar.19, 1936.

Presents topography of region, irrigation data, costs and benefits, and operations for bank protection and inlet controls.

Weybright, Victor. Runaway rivers. Surv.Graphic 25(5):295-299.
May 1936.

Discusses causes of disastrous floods and control methods. Weather studies are recommended, with the construction of dams and forestation in headwater areas.

Grasses

Depopulate the prairies? No! says Dr. N.E.Hansen. Capper's Farmer 47(6):13,54. June 1936.

Discusses plants introduced into prairie regions of the United States from Asiatic countries by Dr. Hansen, with special emphasis on Crested Wheat and Chee Grass from eastern Russia and Siberia. In its native land Chee grass grows to a height of 16 feet on alkali sands where annual precipitation is 8 inches and temperature ranges from 108 degrees to 51 degrees below zero. Chee grass is eaten freely by all livestock when tender, and old stems are used for weaving mats.

Grazing Land

Tugwell, R.G. Our new national domain. Scribner's Mag.99(3):164-168. March 1936.

Outlines the history of public lands in the United States and describes conditions on forest, grazing and crop lands which have brought about the economic necessity for conservation of soils.

Hill Culture

Weir, W.W. Hillside soil conservation. Pacific Rural Press 131(11): 350-351. May 14, 1936.

Discusses over-irrigation practices resulting in all-year erosion in some California orchards and the methods used by Soil Conservation Service to control the condition. Also describes the bench terrace type of cultivation developed in steep hillside orange and avocado groves of southern California which facilitates irrigation and at the same time is effective in the control of erosion.

Highway Erosion

Study erosion control on bureau road project. Pac.Road Builder and Engin. Rev. 44(4):21. April 1936.

Reports erosion control experiments conducted on several large fills on the 5-mile unit of Angeles Crest Highway in Los Angeles county, California. Brush was placed between fill layers during compaction, and hay was placed at the bottom of the fill to cut down volume and rate of flow, reduce water concentration and bind the surface.

Illustrations show erosion control work on the fill.

Photography

Copple, R.F. Photography in relation to pasture investigation in the Soil Conservation Service. Jour.Amer.Soc.Agron. 28(5): 404-410. May 1936.

Discusses importance of focus, shadows, soil profiles, background, frame of picture and topography in making pasture and contour photographs. Also, presents method of inking in soils and designations.

Sediment

Straub, L.G. Transportation of sediment in suspension. Some practical conclusions from field and laboratory investigations. Civil Engin. 6(5): 321-323. May 1936.

Outlines some of the findings concerning the principles underlying transportation of sediment in suspension, as follows: the manner in which particles of various diameters distribute themselves in a vertical section; the effect of certain changes in the chemical composition of the water on the mechanical composition of the suspended load, and the relation between the stream discharge and the quantity of sediment in suspension. Also discusses the selection of a model law to insure similarity in laboratory studies of sedimentation basins.

The author is Professor of Hydraulics, University of Minnesota.

Soil Binders

Bullock, D.M. Atriplex semibaccata as influenced by certain environmental conditions. Ecology 17(2):263-269. April 1936.

As a soil binder this saltbush is particularly efficient. Because of its salt content and succulence it is slow burning and has been planted by the California Forest Experiment Station as a cover on firebreaks where invasion of the annual grasses constitutes a serious fire hazard during the dry season.

Soils

Kelly, W.P. and Jenny, Hans. The relation of crystal structure to base exchange and its bearing on base exchange in soils. Soil Sci. 41(5): 367-382. May 1936.

Reports on tentative experiments to determine the base-exchange capacity of feldspars and micas, of kaolinite and pyrophyllite, and of bentonite, talc, and soil colloids as effected by grinding; and the effect of ammonium acetate on talc, chlorite, bauxite, and quartz. Presents the sequence of atom-planes along the pseudo-hexagonal axis of pyrophyllite, talc, muscovite, and biotite. References at close of article.

Lundblad, Karl. Studies on podzols and brown forest soils:III. Soil Sci. 41(5):383-394. May 1936.

Summary: "The podzol and brown forest soil profiles dealt with in the first and second parts of this paper are further investigated as to their power of dye absorption. Experiments with artificial aluminosilicates show that the dye absorption is comparable to the ion absorption of colloids. The absorption of acid and basic dyes is a promising method for a rapid and conclusive investigation of the colloidal properties of a soil. For a tentative investigation the colorimetric method described in this paper seems to give enough information. Scientifically more conclusive results will be obtained by determining the absorption of the dye at a definite pH value which should lie below and above the isoelectric point for the basic and acid dye respectively. Methods such as those used in the three parts of this paper will permit a rapid and conclusive comparative study of the soil forming processes in different soil regions. Acid-oxalate determinations of the reactive part of the colloids or the easy methods of investigating the amphoteric properties of the soil colloids - especially determinations of the ultimate pH, the pH of exchange neutrality, the combining capacity at different pH values, and the absorption of acid and basic dyes - are very valuable in comparative studies where many analyses are necessary. For a thorough knowledge of the soils total chemical analyses are necessary; for many purposes, however, they may be confined to a few type specimens of the soils and the comparative study made with the easy and rapid methods here applied."

References at close of the article.

Yoder, R.E. A direct method of aggregate analysis of soils and a study of the physical nature of erosion losses. Jour.Amer.Soc. Agron. 28(5): 337-351. May 1936.

Summary: "1. The inherent weaknesses of the elutriation method of aggregate analysis are pointed out and the use of this method of aggregate analysis is questioned. 2. A mechanism is suggested to account for the slaking reaction of soils in the presence of

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Soils (cont'd)

Yoder, R.E. (cont'd)

excess water. 3. A direct method, with suitable apparatus for determining the water stable aggregate distribution in soils, is reported. 4. Several soils of the Cecil series with widely varying clay contents were found to have similar distribution of water stable aggregates. 5. Soils from different series were found to be characterized by different distributions of water stable aggregates. 6. The physical nature of the erosion process was studied on carefully controlled field plats of Cecil clay located on several slopes. The losses from this strongly aggregated soil occurred primarily in the form of water stable aggregates. 7. Data are presented which show the effectiveness of winter legumes in controlling sheet erosion losses. The manner in which this type of vegetative control functions is reviewed. 8. Results on the use of various widths of strip crop for controlling sheet erosion are presented. The basic weakness of this type of vegetative control practice is pointed out."

Soil Conservation

Compton, K.T. Let's go partners. Country Home 60(6):11-13.
June 1936.

Discusses American agricultural problems. States that "waste is abhorrent to all human effort and ideals. Science, on the other hand, stands for conservation, seeking the fullest possible utilization of every tree, of every crop. In making these statements, I am not losing sight of the very great importance of a soil conservation program. The national program of soil conservation now being undertaken through Congressional authorization will be a major step forward - if it is administered wisely for the purpose of soil conservation and not merely as an excuse for gaining other objectives. The argument of the present article merely urges that it be supplemented by equally vigorous and intelligent action in the direction of developing new outlets for agricultural products."

The author was formerly president of the Massachusetts Institute of Technology.

Dorsey, R.W. Soil conservation as a factor in farm finance. Northwest Sci. 10(1):3-5. February 1936.

A study of farm mortgages and mortgage foreclosures as based upon soil fertility and soil deterioration from over use and erosion resulting from intensive farming.

Robbins, L.H. The good earth; a rediscovery. N.Y. Times Mag. illus. Feb. 23, 1936. pages 4-5, 19.

Tells the story of the growth of the land throughout geological eras, its partial destruction through human activities, and present and projected plans for reclamation and conservation of soil and water resources.

Written from the viewpoint of human destiny and inevitable dependence upon the soil.

Soil Conservation (cont'd)

Taylor, E.H. Who takes the rap? Country Gent. 106(4): 14, 91-92. April 1936.

Quotes various economists on the subject of increased production of grass with special reference to surplus production in livestock and dairy industries. Concludes that the soil conservation and land-use program should be slowly and carefully developed, with the following important considerations: 1. the land-owner himself, whose direct interest is to preserve land fertility; 2. the state or local community with need for taxable wealth in the form of fertile farm lands; 3. the National Government whose duty it is to render guidance and assistance to the man on the land, the state or local community.

Wallace, H.A. New vistas for agriculture. Secretary Wallace finds that the prospects for soil conservation are bright, though much depends on the attitude of the farmer. New York Times Mag: Mar. 29, 1936. pp. 4-5, 18.

Will more grass acreage increase livestock? Successful Farming 34(6): 10-11, 29-31. June 1936.

Paul Gerlaugh states that tests from Ohio show that an acre of grass produces less beef than an acre of corn, therefore livestock units may decrease through the influence of the conservation program.

At the same time, W.P. Kirkwood states that figures from Minnesota show that increased fertility from use of legumes and planting in areas best suited to their production will demand more grain-consuming units.

Tree Growth

Turner, L.M. Factors influencing the rate of growth of pine in Arkansas. Ecology 17(2): 227-240. April 1936.

Conclusions: "1. One-hundred and twenty-five one-quarter acre plots of *Pinus echinata* and *Pinus taeda* on 18 soil types or phases of these types were studied in an attempt to correlate rate of growth of these species with quality of site factors. 2. Comparison of quality of sites was made on the basis of the rate of height growth afforded by the site. 3. A rather high degree of correlation was found between the rate of height growth and soil series type alone, particularly as regards soils with little variation in topography. 4. A higher degree of correlation was found between the rate of height growth and degree of slope of soil series types. 5. Sites affording the highest site indices are those on soils that are immature, flat, of high silt or silty sand content... Sites with intermediate value are those on soils that are either flat with apparent more or less impermeable subsoil relatively near the surface, or rolling, sandy loams with friable or plastic clay subsoil relatively near the surface.. Sites with lower site indices are on soils with a high degree of slope and hence excessive water run-off, or extremely stoney, gravelly, or sandy soils with moderate or steep slope,

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Tree Growth (cont'd)

Turner, L.M. (cont'd)

commonly with rather stiff but friable sandy clay subsoil within 12-16 inches of the surface. Such soils have been farmed little or none... 6. The results obtained indicate the practicability of the method in predicting the tree growing potentialities of recognizable site complexes."

Literature citations at close of article.

Water

Free, G.R. A comparison of soil moisture under continuous corn and bluegrass sod. Jour.Amer.Soc.Agron. 28(5):359-363. May 1936.

Describes experiments carried out at the soil erosion experiment station, Clarinda, Iowa, to determine soil and water losses from corn, bluegrass sod, and other crops. Results are presented in tables. The conclusion is that "soil moisture in a 3-foot profile under continuous corn has been significantly more than that under bluegrass sod despite a difference in run-off of 5.51 surface inches."

Literature is cited at the close of the article.

Mackin, J.H. The capture of the Greybull river. Amer.Jour.Sci. 5th ser., 31(185):373-385. May 1936.

Abstract: "A small stream rising in the arid central part of the Big Horn Basin, Wyoming, was able to effect the capture of the much larger Greybull River, which enters the basin from the encircling ranges, because the graded gradient of the small stream, adjusted to the transportation of fine silts and sands derived from weak shales which floor the Basin, was lower than the graded gradient of the Greybull River, adjusted to the transportation of coarse rock waste from the mountains."

Includes a map of the Greybull river area, and photographic illustrations of the Greybull river and Dry Creek at the extreme low water stage, showing the contrast between the coarse gravel transported by the Greybull and the fine silt carried by Dry Creek.

Meyer, A.F. Rainfall changes. Bul.Amer.Met.Soc. 17(4): 102-105. April 1936.

A study of land evaporation and transpiration and wind movements over Minnesota, with special reference to drought prevention. Describes carragana hedge plantings in Saskatchewan for the conservation of snow water in wheat lands.

Ogilvie, A.G. The earth sculpture laboratory. Geogr.Jour. (London) 87(2): 145-149. February 1936.

Gives detailed description of equipment and operations of the University of Edinburgh laboratory in which natural processes due to the flowing water and to wave action is imitated. The laboratory has been successful in illustrating the work of rainwash, rivers, and waves.

Photographic illustrations show models of the following: 1. an embayed coast after attainment of maturity, with coves and stacks on headlands; 2. mature coast with water surface lowered to show abrasion platform and back structures; 3. river flowing on a plateau just after its capture by regressive erosion of a torrent; 4. rejuvenated river after truncation of an incised meander.

Wildlife Management

Work of the Division of Forage Crops and Diseases in relation to wildlife management. Wildlife Rev. no.3, pages 27-31. 1936.

"This Division of the Bureau of Plant Industry, U.S. Department of Agriculture, is interested in legumes and other forage plants from the standpoint of hay or pasturage. It is realized that the seeds of many of these plants as sorghums, lespedezas and others are utilized by game birds and other wildlife, and in some cases the growing crop may make a more or less satisfactory cover."

Bulletins issued by the Division, now available for free distribution are listed with brief comment on the plants they treat, especially in relation to wildlife.

RECENT LIBRARY ACCESSIONS

Books and Pamphlets

Allred, Charles E

...Inventory of land use in Tennessee, by Charles E. Allred... Samuel W. Atkins... Walter P. Cotton... John E. Mason... [Washington, D.C., February 1936.

cover-title, 1 p.l. 38p. (U.S. Federal emergency relief administration, Report no.5)

The Encyclopaedia britannica. 14th ed.

A new survey of universal knowledge.

...London, The Encyclopaedia britannica company, ltd.; New York, Encyclopaedia britannica, inc. [c1932]

24 v. illus.

Hough, Romeyn Beck,

Handbook of the trees of the northern states and Canada east of the Rocky Mountains. Photo-descriptive. By Romeyn Beck Hough... Third and revised edition. Lowville, N.Y., R.B. Hough company, 1924.

470 p. illus.

Iowa. State planning board.

Restore the forest cover; a graphic brochure prepared by the Iowa State planning board... [Des Moines? 1935]

[28] p. illus.

Kabanov, N.E. Bibliograficheskaya svodka materialov po rastitel'nomu i pochvennomu pokrobu Dal'nevostochnogo kraia za poslednee desiatilétie (1923-1933) Trudy Dal'nevost. Filiala Akad. Nauk SSSR Ser. Bot. 1:433-568. 1935.

Russian.

Bibliography of the materials on the vegetation and soil cover of the Soviet Far East for the last decade.

Kramer, Joseph

Relative efficiency of roots and tops of plants in protecting the soil from erosion, by Joseph Kramer... and J.E. Weaver... Lincoln, January 1936.

94 p. illus., Hebr. Univ. Conserv. dept. bul. 12.

Schimper, Andreas Franz Wilhelm,

Plant-geography upon a physiological basis, by Dr.A.F.W.Schimper...
The authorized English translation by William R.Fisher... Rev.and
ed. by Percy Groom...and Isaac Bayley Balfour... Oxford, Clarendon
press, 1903

839 p. front.,illus.

"Select literature" at end of chapters.

State Publications

McPheters, W.H.

...Baffles for terrace control. by W.H.McPheters... Stillwater,
Okla., 1935.

14p. illus. (Oklahoma agricultural and mechanical college. Extension
service. Circular 328)

Pittman, D.W.

A glance at the problem of alkali soils, by D.W.Pittman. Logan,
March 1936.

4 unnumb.p. (Utah. Agricultural experiment station. Leaflet no.71)

Weir, Walter W

...A rating of California soils, by Walter W.Weir and R.Earl Storie...
Berkeley, January 1936.

157 p. tables. (California agricultural experiment station. Bul.599)
Maps to accompany Bul.599 in separate envelope.

U.S.Government Publications

George, Ernest J

...Growth and survival of deciduous trees in shelter-belt experiments
at Mandan, N.Dak., 1915-34. By Ernest J.George... Washington, U.S.Govt.
print.off., February 1936.

48p. illus.,tables, (U.S.Dept.Agr.Tech.Bull.496)

Literature cited: p.48.

Kellogg, Charles E

...Development and significance of the great soil groups of the United
States, by Charles E.Kellogg... Washington, U.S.Govt.print.off., 1936.

40p. illus.maps. (U.S.Dept.of agriculture. Miscellaneous Pub .no.229)

"References":p.59

Kraebel, Charles J

...Erosion control on mountain roads, by Charles J.Kraebel... Washing-
ton, U.S.Govt.print. off., 1936.

45p. illus. (U.S.Dept. of agriculture. Circular no.380)

Mattoon, Wilbur R

Forest trees and forest regions of the United States, by Wilbur R.
Mattoon... Washington, U.S.Govt.print.off., 1936.

55 p. illus. (U.S.Dept. of agriculture. Miscellaneous Pub .no.217)

U.S.War dept. Corps of engineers. Daily discharge of Mississippi river
and its tributaries and outlets 1932. 60pp. Vicksburg, Miss., 1936.

Compiled in the Office of the President, Mississippi River Commission,
Vicksburg, Miss.

